

## [54] CAPSULE MANUFACTURE

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[\*] Notice: The portion of the term of this patent  
subsequent to Jan. 4, 1994, has been  
disclaimed.

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## Related U.S. Application Data

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106/308 M; 252/182; 252/522; 424/32;  
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[58] Field of Search ..... 252/316; 427/151, 152

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[57]

## ABSTRACT

A process is disclosed for performing encapsulation, en masse, by an in situ polymerization reaction to yield capsule wall material. The polymerization includes a reaction between urea and formaldehyde or polycondensation of monomeric or low molecular weight polymers of dimethylol urea or methylated dimethylol urea in an aqueous vehicle and the reaction is conducted in the presence of negatively-charged, carboxyl-substituted, linear aliphatic hydrocarbon polyelectrolyte material dissolved in the vehicle. Liquid-liquid phase separation is accomplished and maintained by increase in the molecular weight of the resulting condensation polymer without further dilution of the manufacturing vehicle. The negatively-charged polyelectrolyte material is required and has an apparent effect of controlling or modifying the polymerization reaction. The disclosed encapsulation process permits manufacture of microcapsules in concentrations of capsule to capsule manufacturing vehicle higher than previously possible.

10 Claims, No Drawings